Limitations of levels, learning outcomes and qualifications as drivers towards a more knowledge-based society

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Abstract: National (and European) qualifications frameworks, the specification of learning outcomes and grand targets like the Lisbon goals of increasing the supply of graduates in Europe in order to achieve a more knowledge-based society are all predicated upon the idea of moving people through to higher and well-defined levels of skills, knowledge and understanding. However, the work of researchers, from the UK's Teaching and Learning Research Programme (TLRP), examining work-related learning from a number of perspectives, would suggest that the way to move towards a more knowledge-based society is for as many people as possible, whatever their supposed highest overall "level" of skills is, to believe that they should develop their skills, knowledge and competence in a number of ways unrelated to their current highest "level". This means rather than having an essentially binary conception of competence at the heart of the levels, it would be far more beneficial in inducing the frame of mind required of a knowledge-based society to have a developmental view of expertise. Such an approach can address three particular challenges that a "levels" approach finds difficult to accommodate. First, there is the issue of transfer—there would be an expectation that graduates would be some way from "experienced worker standard" when they completed their initial training. Secondly, such an approach could provide the conditions in which a commitment to continuous improvement at work could flourish, as most people would believe that they needed to develop in a number of ways (at a range of "levels") in order to improve their performance. Thirdly, this approach of continuing to expect people to continue to develop a range of skills would offer some protection against the development of "skilled incompetence" (where organisations and individuals continue to focus upon what they do well without paying due regard to the future).

Key words: levels; learning outcomes; qualifications; developmental view of expertise; knowledge-based society

1. Context

1.1 European Qualifications Framework

The Framework for Qualifications of the European Higher Education Area (FQEHEA), adopted by European Ministers for Higher Education (HE) in Bergen in May 2005, is part of the implementation of the Bologna process. There is, however, also a second European Meta-Framework for Qualifications currently under development—the European Qualifications Framework (EQF). What is therefore of particular interest in the field of work-related learning is the articulation of qualifications frameworks for HE and other areas, principally Vocational Education

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and Training (VET), in order to facilitate progression as well as deliver the skills, competences, knowledge and understanding necessary to perform highly skilled work. The development of national frameworks of qualifications is an area of national responsibility, and the EQF will be a benchmark against which national frameworks can be measured, rather than an entity into which other national qualifications frameworks have to fit. National frameworks of qualifications will also continue to change to reflect changes in priorities as part of a national political process. In September 2006, the Commission adopted a proposal for a recommendation of the European Parliament and of the Council on the establishment of the EQF for lifelong learning. The aim is that the EQF will relate to all education and training awards in Europe, including those aligned with the FQEHEA. The EQF will provide a common language to describe qualifications which will help Member States, employers and individuals compare qualifications across the EU's diverse education and training systems. The core element of the EQF is a set of eight reference levels describing what a learner knows, understands and is able to do—their "learning outcomes"—regardless of the system where a particular qualification was acquired. The EQF reference levels, with their focus on learning outcomes, are intended to:

- (1) Support a better match between the needs of the labour market (for knowledge, skills and competences) and education and training provision;
 - (2) Facilitate the validation of non-formal and informal learning;
 - (3) Facilitate the transfer and use of qualifications across different countries, education and training systems.

The EQF covers general and adult education, as well as VET and HE. The eight levels are intended to cover all qualifications from those achieved at school to those awarded at the highest level of academic, professional or VET. The role of the EQF will be to the function as a translation device to make relationships between qualifications and different systems clearer, thereby helping European education and training systems to become more transparent and accessible to the general public and to adapt both to the demands of the knowledge society and to the need for an improved level and quality of employment. Now increased transparency is a worthwhile goal in its own right, but it is a common trap to think that a more highly qualified workforce equates to a more highly skilled and more knowledgeable workforce. I will argue that the focus on levels, qualifications and learning outcomes can be comforting because it gives the illusion of progress, but a much more sophisticated model of skill development and expertise is required to underpin meaningful movement towards a knowledge society.

1.2 Problems with the focus on qualifications, outcomes and levels

In the context of the Lisbon goals there is a temptation to focus upon the targets (percentage of people receiving qualifications at a particular level) rather than the goal of moving towards a more knowledge-based society. The focus upon outcomes and levels may make the goal harder to achieve as it may exacerbate the problem whereby people think that a qualification marks a significant end to the learning process, rather than simply being a marker for a change of focus of learning. Perhaps a classic example of this is nursing in England: when nurses become fully qualified they invariably struggle for the first few months because of a lack of support in dealing with the significant learning challenges they face in their transition from student status and in their attempts to transfer what they have previously learned to their new work situation (Eraut, et al., 2004). In many ways, they have much more to learn in the six months after qualification than at any stage of their training, but

many people are misdirected by the achievement of the qualification into thinking that they are fully proficient. Indeed this example can be extended in order to make wider point that criticisms that graduates are not fully work-ready fundamentally misunderstands that support for transfer of learning and the development of a new work-related identity is almost always required when people move between contexts. Furthermore, levels are treated as if they have some universal meaning and this assumption acts as a bar to genuine skill development: in reality all skill profiles are likely to be spiky (as performance in some aspects are much stronger than in others), whereas attribution of a level represents an aggregation of performance. For example, many hospital consultants could benefit from development of basic communication skills, but getting consultants to sign up to such courses, rather than high level specialist courses, is problematic, principally because their image of themselves as learners and specialists means they consider they long ago progressed beyond that type of learning. Attribution of qualifications to levels is also always a political process, as it depends upon valuing certain types of skills, knowledge and understanding over others, and upon decisions about how demanding it is to make initial qualifications. For example, the initial training of people to take X-rays depends largely upon the breadth of training: 10 weeks for an assistant radiographer or three years for a radiographer trained to use a wider variety of equipment and given greater underpinning knowledge. An even more explicit example of the political process concerns the development of guidance practitioners—those with a full range of counseling, training, development, coaching and mentoring skills may possess a qualification at level 4 or 5 in the English National Qualification Framework (NQF). Yet an executive coach, with a very much reduced set of skills for influencing and supporting others, can obtain a level 7 qualification. The argument is that the volume of learning is very much less in the latter case but the level is higher. In practice, however, it is hard not to believe the decisive factor is the status of the person being coached: a senior executive!

The arbitrariness of levels is though perhaps best illustrated by another level 7 NQF qualification: the Diploma in Translation (from the Institute of Linguists). This is a professional qualification intended for those who, having reached a level of linguistic competence at least equivalent to a good Honours degree, wish to embark on a career in professional translation. The Diploma tests the ability of candidates to translate to a professional standard, together with their awareness of the professional task of the translator. This qualification also illustrates that transfer between academic and professional qualifications is not straight forward. An Honours degree would rarely be sufficient to enable a candidate to pass the requisite examinations and they would normally need to complete a further programmer of study and gain some professional experience. On the other hand, someone with professional experience (based on linguistic competence as a native speaker) but without a degree completion of the Diploma, would be given, for example, only 60 credits at level 2 towards an undergraduate degree (equivalent to NQF level 5). This example gets to the crux of the matter—moving from a level 7 to a level 5 qualification not only clearly represents progression at the individual level, but would also add value to the general stock of skills, knowledge and understanding of the workforce and make sense in terms of the Lisbon goals. However, for the Lisbon targets it is not making the individual worker or the workforce as a whole more highly qualified: the proxy for more highly skilled (i.e. more highly qualified) is preferred in policy terms to more highly skilled in practice. Each of the 8 EQF levels is defined by a set of descriptors indicating the required learning outcomes for a qualification at that level in any system of qualifications. In the EQF, knowledge is described as theoretical and/or factual; skills are described as cognitive (use of logical, intuitive and creative

thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments); competence is described in terms of responsibility and autonomy.¹

Now the advantage of the EQF approach is that it highlights how people can build varying configurations of knowledge, skills and competence in different ways, as it draws together achievements in learning and development that occur in education and work settings. However, the framework treats the key concepts of knowledge, skills and competence as if they are unproblematic and can be transferred easily between contexts. Indeed the thrust of the strategy for the achievement of the Lisbon goals is that getting more people to levels 5-8 will lead to a knowledge-based economy that is the most competitive in the world. The argument turns on whether achievement of the learning outcomes specified in levels 5-8 can be delivered, mainly by HE, hence the fixation with the target of 50% of the cohort going to HE and achieving the specified learning outcomes. The transfer of these achievements into performance at work, and in the labour market more generally, is treated as if it is unproblematic.

2. The challenge of transfer

However, Eraut (2005) draws attention to how transitions between education and practice contexts are generally

¹ Level 1: the learning outcomes relevant to Level 1 are:

⁽¹⁾ Basic general knowledge; (2) Basic skills required to carry out simple tasks; (3) Work or study under direct supervision in a structured context.

Level 2: the learning outcomes relevant to Level 2 are:

⁽¹⁾ Basic factual knowledge of a field of work or study; (2) Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools; (3) Work or study under supervision with some autonomy.

Level 3: the learning outcomes relevant to Level 3 are:

⁽¹⁾ Knowledge of facts, principles, processes and general concepts, in a field of work or study; (2) A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information; (3) Take responsibility for completion of tasks in work or study; (4) Adapt own behaviour to circumstances in solving problems.

Level 4: the learning outcomes relevant to Level 4 are:

⁽¹⁾ Factual and theoretical knowledge in broad contexts within a field of work or study; (2) A range of cognitive and practical skills required to generate solutions to specific problems; (3) Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; (4) Supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities

Level 5: the learning outcomes relevant to Level 5 are:

⁽¹⁾ Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge; (2) A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems; (3) Exercise management and supervision in contexts where there is unpredictable change; (4) Review and develop performance of self and others.

Level 6: the learning outcomes relevant to Level 6 are:

⁽¹⁾ Advanced knowledge of a field, involving a critical understanding of theories and principles; (2) Advanced skills, demonstrating mastery and innovation required to solve complex and unpredictable problems in a specialised field of work or study; (3) Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts; (4) Take responsibility for managing professional development of individuals and groups.

Level 7: the learning outcomes relevant to Level 7 are:

(1) Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking; (2) Critical awareness of knowledge issues in a field and at the interface between different fields; (3) Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields; (4) Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; (5) Take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams.

Level 8: the learning outcomes relevant to Level 8 are:

⁽¹⁾ Knowledge at the most advanced frontier of a field and at the interface between fields; (2) The most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice; (3) Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research.

experienced as major causes of discontinuity, "In educational contexts, learning trajectories are aligned to aspects of academic, codified knowledge or to the skills of interacting, critical thinking and learning in a formal environment dominated by assessments. In practice settings, the trajectories are aligned to types of client and how they are treated, the performance of tasks and roles, the development and sustenance of relationships with clients and colleagues, and contributions to group or organizational activities" (p. 2). What this means is that the transfer of skills and knowledge between settings (not just between education and work) is multi-dimensional—it is not a question of just transferring particular skills or specific knowledge. Similarly, even if a person is able to produce competent performance in an "ideal" work setting (with relaxed time and resource constraints), this can be a different proposition from reaching "experienced worker" status and is reinforced by reference to companies, working in technologically advanced sectors, who build up competence inventories of their staff. They differentiate between:

- (1) Those who are technically able to perform a task but have very limited practical experience of actually doing so (e.g. could use in an emergency or, if necessary, for a one-off activity.);
- (2) Those who have successfully performed the task on a small number of occasions (e.g. could use if wish to develop their expertise further; in a support role or if time is not necessarily a key criterion.);
- (3) Those who have performed the task many times and under a variety of conditions (i.e. experienced worker standard—completely reliable.);
- (4) Those who have substantial experience but are also able to support the learning of others (i.e. they can perform a coaching or mentoring role.);
- (5) Those who are world class, that is they are able to think through and, if necessary, bring about changes in the ways that tasks are tackled (e.g. could be chosen as a team leader for performance improvement activities.).

The interesting thing here is that this approach to personal professional development emphasizes the importance of the recontextualisation of skills, knowledge and experience and, in this sense, recognises there are continuing challenges in relation to the transfer of skills and knowledge. You may perform relatively much better at one level than another—most obviously in that coaching others and thinking in new ways require different skills sets compared to the standard view of expert performance.

2.1 Importance of recontextualisation of skills, knowledge and experience

It is striking that the level descriptors of the EQF do not engage with the issue of the recontextualisation of skills, knowledge and experience. However, there have been many examples in HE where curricula have included work placements or have adopted a curriculum around practice-based enquiry or problem-based learning.² These approaches, however, often use considerable amounts of staff time. They may also have unintended consequences. The training of radiographers in the UK is much more demanding than general undergraduate science courses, mainly because the trainees spend considerable time in hospitals learning through working. In a three years period they are actively engaged in learning for over 50% more time than conventional undergraduates, they have to cope with learning in two very different contexts and they experience first hand what it is like "to be a radiographer". As a consequence, some years ago, on some courses only a minority of their graduates became radiographers. This was because as science graduates they had a choice of careers available to them, many of which were better paid and less stressful. The situation of radiographers has improved since then with the introduction of a recognisable career

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² The University of Maastricht itself consciously sought to use problem-based learning as a curricular approach from when it was first established as a university.

ladder and increased pay, but the major reason for which many did not enter the profession at that time was how they were treated by medical staff. The training served as a realistic introduction as to what it was like to be a radiographer and have your work undervalued by colleagues. If you do equip people with the ability to recontextualise their skills, knowledge and experience, they will feel they have a wider range of career choices.

2.2 Importance of the integration of different kinds of knowledge

Professionals often find that the most important workplace tasks and problems require the integrated use of several different kinds of knowledge, which can be particularly challenging for those just "starting out" in their careers. This is the real challenge: predominantly education-based routes and predominantly work-based routes will lead to the development of different types of knowledge, but in many occupations either will be insufficient as it is the combination and integration of different types of knowledge that is often the major challenge. Form this perspective looking at the transition from one form of training to work is really focusing upon the wrong transition—the key transition is not from training to work, but from training to experienced worker status. This shift of perspective would enable people to look at immediate post-qualifying period as a time in which a great deal of learning takes place, and to recognise that the degree of support an individual receives at that time, could have more significance for their ultimate success than the type of pathway they followed in training. People early in their careers learn a great deal from challenges at work, provided that they receive support as required, because without this they feel overwhelmed and may start to lack confidence in their own abilities. Eraut, et al (2004) highlight how people learn most effectively when a virtuous circle of confidence, support and challenge is created. It is often the combination and integration of different types of knowledge that is the major challenge for most people making significant changes into or between work contexts. Further it is often the case that performance at work does not depend simply on doing high level activities well, but on improvement in the performance of a range of activities at different levels.3

3. The challenge of continuous improvement in the workplace

The focus upon levels, qualifications and learning outcomes are also misdirection in that it can draw attention to the need for people to become more highly qualified (in moving towards a higher level). When in order to become more skilled and more effective in terms of improvement of their performance, it would be beneficial to pay attention to the development of their skills, knowledge and understanding at lower levels. An example of this was a materials scientist with a Ph.D. who admitted his contribution to a performance improvement team was greatly hampered by his inability to communicate effectively with people without his level of expertise. Brown, et al (2004) outline a number of "case stories" that show how substantive and effective work-based learning may involve learning and development of skills, knowledge and competence at a variety of levels, with most employees not being concerned about qualifications or levels, and learning and development being principally regarded as processes designed to effect improvements in organisational effectiveness. These cases look about the learning and development that occurred following the formation of regional supply chain networks in the automotive and aerospace sectors. These partnerships involved Small and Medium-sized Enterprises (SMEs),

³ Criticism of graduates is often framed in these terms—they are reputed not to be able to do simple tasks well—but they have been in an environment where very often you are able to leave certain achievements at lower levels behind you, or else they have just not been exposed to certain activities that they meet routinely in the workplace.

often linked to a larger company, through inter-company learning networks that were supported by specialist tutors and had a strong focus on both immediate performance improvements and personal educational development.

The underlying pedagogical idea was that there is considerable value in attempting to link processes of knowledge creation with tackling the core problems of manufacturing practice as a means of engaging learners that have traditionally been difficult for educational institutions to reach. The model of learning used with its emphasis upon networking, knowledge creation, linking an initial focus upon performance with a progressive broadening of ideas about learning and development was particularly well suited to its context: supporting learning and development in advanced supply chains. The case stories demonstrated that the outcomes of the learning processes could be viewed under different aspects such as learning at the individual, group and company levels. The evaluation of individual learning showed that the extent to which learning opportunities were realised and learning objectives achieved, depended very significantly on the extent, to which there was senior management support for and willingness to release the resources necessary to sustain a programme of process improvement both in the short term and over a longer period. What is clear is that where such support was forthcoming there were clear improvements in group performance and evidence of organisational learning, in which new approaches to process improvement were adopted.

Now what is of interest to us in the present context is that these programmes of learning and development are taking place largely outside formal systems of education and training and, although they could result in very significant learning and development at the level of the individual, team and the organization, the learning was not accredited in any way. The lesson to be learned here is that there is significant learning and development that occurs in the workplace and, as this does have implications for the Lisbon goals, it should give pause for thought about the fixation with the Lisbon targets. Also if these types of activities were more widespread, which would take the pressure from HE institutions, having to "pack" their curricula, as there would be more recognition that skills, knowledge and competence continue to be developed in work contexts after completion of HE programmes of study.

4. The challenge of the development of "skilled incompetence" in successful small companies

The third way, the focus upon levels, qualifications and learning outcomes can misdirect attention is that it gives the impression that learning at a particular level can be considered complete: the learning outcomes have been achieved. Whereas in practice, such attitudes can lead to what Argyris (1990) called "skilled incompetence", where the focus on doing current activities well can nevertheless result in neglect of professional growth and development to the long-term detriment of the organisation. Brown (2005) highlights how the success of small companies could partly depend on the way they handled, either explicitly or implicitly, two key challenges: how to focus upon, protect and develop their core competencies and how to avoid the gradual development of "skilled incompetence". The case studies showed that companies were often quite good at protecting and developing their core competencies, even if this was not a formal goal. Meeting the challenge of the development of "skilled incompetence" was much more demanding. For some companies the current way of doing things, including the constant search for and focus upon technical development, meant they neglected more strategic considerations, including plans for the professional growth of staff and opportunities to reflect systematically on their ways of

interacting externally.

Several effects of the accumulation of "skilled incompetence" might be expected in an organisation that does not develop specific plans for professional growth. A company's small-size allows fast knowledge sharing among people, ensuring less dependence on a single resource and improves role flexibility. Yet the company's model of investment on human resources should be developed in order to comply with conditions of both keeping key human resources and achieving long-term objectives. Moreover, the occurrence of significant reshaping of technological activities due to breakthrough events, or even to the effects of incremental innovation in the field, might cause unforeseen problems in an organisation which does not systematically reflect on its ways of interacting externally, its community practices, and its approach to applying technological solutions. In such circumstances public policy should be directed at offering support for apparently dynamic and healthy companies in looking at the broader horizon and considering the company as a unity—not only in terms of its individual members—and should take specifically into account its existing external and internal learning paths.

So, rather than an expectation that HE will deliver graduates who have completed their intellectual development to the requisite level, which would be more useful for the development of a knowledge-based society to recognise that thinking in these terms is itself problematic. Additionally, public policy should seek to support the learning and development of staff in small companies that are apparently thriving, because it is at that time that support for further professional development is likely to be squeezed and a drift towards "skilled incompetence" might be underway, with negative consequences for the development of a knowledge-based society.

5. Conclusion

My contention is that the way to move towards a more knowledge-based society is for as many people as possible, whatever their supposed highest overall "level" of skills, knowledge and competence, to believe that they should seek to develop their skills, knowledge and competence at a number of levels (including those below as well as above their current highest "level"). Additionally, rather than having an essentially binary conception of competence at the heart of the levels, where it has either been reached or not, which would be far more beneficial in inducing the frame of mind required of a knowledge-based society to have a developmental view of expertise. This could be on the following lines:

- (1) Technically able to perform a task but have very limited practical experience of actually doing so;
- (2) Have successfully performed the task on a number of occasions;
- (3) Have performed the task many times and under a variety of conditions (i.e. experienced worker standard.);
- (4) Have substantial experience but are also able to support the learning of others (i.e. can perform a coaching or mentoring role.);
- (5) World class, those who are able to think through and, if necessary, bring about changes in the ways that tasks are tackled.

Such an approach would immediately address the issue of transfer—most individuals completing education and training, including graduates from vocational HE programmes would still be, and crucially under this model everyone would expect them to be, some way from "experienced worker standard" when they completed their initial training. This approach could also provide the conditions in which a commitment to continuous

improvement could flourish. Not only would most people believe that they needed to develop in a number of ways (at a range of "levels") in order to improve their performance, but also the "working coaches" so critical to supporting the learning of others would increasingly be in place. Thinking about the nursing example from earlier, do you think their post-qualifying experience would be transformed if it was widely recognised that they needed continuing support and that some of the slightly more experienced nurses had developed their skills of supporting the learning and development of others? Additionally, this approach of continuing to expect people to continue to develop a range of skills and to have a broad conception of expertise would seem to offer some protection against the development of "skilled incompetence" because continuing professional development and growth would be recognised as being strategically important.

If we are to move towards a knowledge-based society, we need to focus more upon supporting the processes of learning and development, and to adopt a more expansive view of the nature of skills, knowledge and competence than that enshrined in the current manifestation of the NQF levels. This more expansive view will pay particular attention to the need to address issues of transfer of skills, knowledge and experience between different settings; how to support individuals in developing a frame of mind whereby they continually look to improve their own performance through learning and development and to support the learning and development of others; and to recognise that in any organisation a commitment to continuing growth and development of its members is strategically important.

In this view VET programmes, including those with a substantive amount of work-related learning, should seek to help individuals move in the direction of chosen learning outcomes but their achievement should be regarded as partial—the value of VET can probably only be properly judged some time after individuals have been applying their skills, knowledge and experience in work settings over time and ideally across a range of contexts.

Overall, this argument about the need to pay greater attention to learning at the workplace is not an argument for a particular type of education and training programmes. A more coherent and comprehensive view of the type of learning and development required to support continuing learning at work can interact with a wide range of education and training provision that varies according to subject, breadth, depth and timing. In the full paper I will draw out some ways in which learning in education and training programmes and learning at work may interact, drawing upon the findings of Brown.

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